

Appl. No. 10/715,879  
Amdt. dated January 13, 2006  
Reply to Office Action of October 19, 2005

PATENT

**Amendments to the Claims:**

*This listing of claims will replace all prior versions, and listings, of claims in the application:*

**Listing of Claims:**

1. (Currently Amended) A network interface device located at a customer's premises, comprising:

an external interface that receives a plurality of telecommunication services via a fiber optic connection from a telecommunication service provider, wherein the services are received using Internet Protocol;

at least two distinct internal interfaces that distribute the plurality of telecommunication services to at least two distinct internal transport media; and

a processor programmed to:

**receive a control signal to modify the configuration of the external interface, the control signal initiated remotely by the telecommunication service provider;**

receive combined signals comprising the telecommunication services from the external interface;

process the combined signals into separate signals representative of distinct telecommunication services; and

map each of the separate signals to separate ones of the at least two distinct internal interfaces for distribution at the customer's premises via the internal transport media, **wherein one of the at least two distinct internal interfaces is allocated at least a specified amount of bandwidth available through the fiber optic connection.**

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2. (Original) The network interface device of claim 1, wherein the external interface is further configured to direct signals relating to the telecommunication services to the telecommunication service provider via the fiber connection using Internet Protocol.

3. (Original) The network interface device of claim 1, wherein at least one of the at least two distinct internal interfaces is configured to receive signals relating to one of the telecommunication services from one of the internal transport media.

4. (Original) The network interface device of claim 1, wherein the processor is further programmed to:

receive separate signals from the at least two distinct internal transport media;

process the separate signals into a combined signal; and

direct the combined signal to the external interface for distribution to the telecommunication service provider via the fiber optic connection using Internet Protocol.

5. (Original) The network interface device of claim 1, further comprising a signal integrator in communication with the at least two distinct internal interfaces, wherein the signal integrator is operable to integrate signals from the at least two distinct internal transport media into a combined information set.

6. (Original) The network interface device of claim 1, wherein at least one of the internal transport media comprises a coaxial cable.

7. (Original) The network interface device of claim 1, wherein at least one of the internal transport media comprises a twisted pair cable.

8. (Original) The network interface device of claim 7, wherein the twisted pair cable comprises existing telephone wiring at the customer premises.

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9. (Original) The network interface device of claim 7, wherein the twisted pair cable comprises an Ethernet cable.

10. (Original) The network interface device of claim 1, wherein the fiber optic connection comprises a single-strand fiber optic connection capable of providing two-way communication.

11. (Original) The network interface device of claim 10, wherein the single-strand fiber optic connection uses either or both of wave-division multiplexing and time-division multiplexing.

12. (Original) The network interface device of claim 1, wherein the fiber optic connection comprises a multi-strand fiber optic connection.

13. (Original) The network interface device of claim 1, wherein the external interface comprises at least one multiplexer.

14. (Original) The network interface device of claim 1, wherein the telecommunication services comprise one or more selections from the group consisting of video, data, and voice.

15. (Original) The network interface device of claim 14, wherein different telecommunication services are transported in different frequency ranges.

16. (Original) The network interface device of claim 1, wherein the internal interfaces comprise a selection from the group consisting of IEEE 1394, RG6, RG59, wireless interface, 802.11, LMDS, Ethernet, twisted pair, category 3, category 4, category 5, category 6, category 7, and coaxial.

17. (Original) The network interface device of claim 1, wherein signals are transported on the internal transport media using a protocol selected from the group consisting of HPNA, HPNA+, and Home Plug.

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18. (Original) The network interface device of claim 1, wherein the plurality of telecommunication services originate from a plurality of telecommunication service providers.

19. (Currently Amended) A system for providing telecommunication services to a customer's premises, comprising:

an external transport medium comprising a fiber optic distribution system that uses Internet protocol to deliver the telecommunication services to the customer's premises; and

a network interface device at the customer's premises, wherein the network interface device comprises:

an external interface that receives a plurality of telecommunication services via the external transport medium;

at least two distinct internal interfaces that distribute the plurality of telecommunication services to at least two distinct internal transport media; and

a processor programmed to:

receive a control signal to modify the configuration of the external interface, the control signal initiated remotely by the telecommunication service provider;

receive combined signals comprising the telecommunication services from the external interface;

process the combined signals into separate signals representative of distinct telecommunication services; and

map each of the separate signals to separate ones of the at least two distinct internal interfaces for distribution at the customer's premises via the internal transport

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media, wherein one of the at least two distinct internal interfaces is allocated at least a specified amount of downstream bandwidth available through the fiber optic connection.

20. (Original) The system of claim 19, wherein the external interface is further configured to direct signals relating to the telecommunication services to the telecommunication service provider via the fiber connection using Internet Protocol.

21. (Original) The system of claim 19, wherein at least one of the at least two distinct internal interfaces is configured to receive signals relating to one of the telecommunication services from one of the internal transport media.

22. (Currently Amended) The system of claim 19, wherein the processor is further programmed to:

receive separate signals from the at least two distinct internal transport media;

process the separate signals into a combined signal; and

direct the combined signal to the external interface for distribution to the telecommunication service provider via the fiber optic connection using Internet Protocol, wherein one of the at least two distinct internal interfaces is allocated at least a specified amount of upstream bandwidth available through the fiber optic connection.

23. (Original) The system of claim 19, further comprising a signal integrator in communication with the at least two distinct internal interfaces, wherein the signal integrator is operable to integrate signals from the at least two distinct internal transport media into a combined information set.

24. (Original) The system of claim 19, wherein at least one of the internal transport media comprises a coaxial cable.

25. (Original) The system of claim 19, wherein at least one of the internal transport media comprises a twisted pair cable.

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26. (Original) The system of claim 25, wherein the twisted pair cable comprises existing telephone wiring at the customer premises.

27. (Original) The system of claim 25, wherein the twisted pair cable comprises an Ethernet cable.

28. (Original) The system of claim 19, wherein the fiber optic connection comprises a single-strand fiber optic connection capable of providing two-way communication.

29. (Currently Amended) The system of claim 28, wherein the single-strand fiber optic connection uses ~~either or both of~~ wave-division multiplexing and time-division multiplexing.

30. (Original) The system of claim 19, wherein the fiber optic connection comprises a multi-strand fiber optic connection.

31. (Original) The system of claim 19, wherein the external interface comprises at least one multiplexer.

32. (Canceled).

33. (Currently Amended) The system of claim ~~32~~ 28, wherein different telecommunication services are transported in different frequency ranges.

34. (Original) The system of claim 19, wherein the internal interfaces comprise a selection from the group consisting of IEEE 1394, RG6, RG59, wireless interface, 802.11, LMDS, Ethernet, twisted pair, category 3, category 4, category 5, category 6, category 7, and coaxial.

35. (Original) The system of claim 19, wherein signals are transported on the internal transport media using a protocol selected from the group consisting of HPNA, HPNA+, and Home Plug.

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36. (Original) The system of claim 19, wherein the plurality of telecommunication services originate from a plurality of telecommunication service providers.

37. (Original) A method of delivering a plurality of telecommunication services to a customer's premises, comprising:

receiving combined signals comprising the telecommunication services from a telecommunication service provider via an external interface to a fiber optic connection, wherein the services are received using Internet Protocol;

processing the combined signals into separate signals representative of distinct telecommunication services; and

mapping each of the separate signals to separate ones of at least two distinct internal interfaces to at least two distinct internal transport media for distribution at the customer's premises via the internal transport media, wherein one of the at least two distinct internal interfaces is allocated at least a specified amount of downstream bandwidth available through the fiber optic connection.

38. (Original) The method of claim 37, wherein the external interface is further configured to direct signals relating to the telecommunication services to the telecommunication service provider via the fiber connection using Internet Protocol.

39. (Original) The method of claim 37, wherein at least one of the at least two distinct internal interfaces is configured to receive signals relating to one of the telecommunication services from one of the internal transport media.

40. (Original) The method of claim 37, further comprising:

receiving separate signals from the at least two distinct internal transport media;

processing the separate signals into a combined signal; and

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directing the combined signal to the external interface for distribution to the telecommunication service provider via the fiber optic connection using Internet Protocol.

41. (Original) The method of claim 37, further comprising integrating signals from the at least two distinct internal transport media into a combined information set.

42. (Original) The method of claim 37, wherein at least one of the internal transport media comprises a coaxial cable.

43. (Original) The method of claim 37, wherein at least one of the internal transport media comprises a twisted pair cable.

44. (Original) The method of claim 43, wherein the twisted pair cable comprises existing telephone wiring at the customer premises.

45. (Original) The method of claim 43, wherein the twisted pair cable comprises an Ethernet cable.

46. (Original) The method of claim 37, wherein the fiber optic connection comprises a single-strand fiber optic connection capable of providing two-way communication.

47. (Canceled).

48. (Original) The method of claim 37, wherein the fiber optic connection comprises a multi-strand fiber optic connection.

49. (Original) The method of claim 37, wherein the external interface comprises at least one multiplexer.

50. (Original) The method of claim 37, wherein the telecommunication services comprise one or more selections from the group consisting of video, data, and voice.



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51. (Original) The method of claim 50, wherein different telecommunication services are transported in different frequency ranges.

52. (Canceled).

53. (Canceled).

54. (Original) The method of claim 37, wherein the plurality of telecommunication services originate from a plurality of telecommunication service providers.

55. (New) The network interface device of claim 1, the network interface device further comprising:

a customer area physically accessible to the customer; and

a network area physically accessible only to the telecommunication service provider, wherein the processor is located in the network area.

56. (New) The network interface device of claim 55, wherein the processor is further configured to automatically request updated configuration information.

57. (New) The system of claim 19, wherein the processor is programmed to provide one of a plurality of Quality of Service (QoS) levels for each of the at least two distinct internal transport media.

58. (New) The system of claim 22, wherein one of the at least two distinct internal interfaces is allocated a limited portion of the bandwidth available through the combined signal.